SANYO

SANYO
PORTABLE RADIO
CASSETTE RECORDER
M2480K
SERVICE MANUAL

SPECIFICATIONS

Tape recorder section	
Recording system:	AC bias, double track
Erasing system:	DC erase
Tape speed:	1-7/8 ips (4.75 cm/sec.)
Recording time:	60 min. (C-60 cassette)
Rewind & Fast forward time:	90 sec. (C-60 cassette)
Frequency response:	30-12,000 Hz
Wow & Flutter:	0.3% RMS
Signal to noise ratio:	45 dB
Input:	MIC: 30K ohm
	AUX IN: 100K ohm
Output:	EXT SP: 8 ohm
Radio tuner section	
Frequency range:	MW: 530-1605 KHz
	FM: 88-108 MHz
	SW1: 2.3-7 MHz
	SW2: 7-22 MHz
General	
Output power:	3 W maximum
Power source:	DC: 6V (UM-1x4)
	AC: 120/200/240V
Speaker:	4" x 6" P.D.S.
Dimentions:	13-7/8"(W)x8-13/16"(H)x3-15/16"(D)
	(353x223x98 mm)
Weight:	8.7 lbs. (3.8 Kg) approx.

DISASSEMBLY INSTRUCTION

1. Turn the unit front-side done on the soft cloth as illustrated.
2. Remove the battery compartment lid and take out the batteries.
3. Remove 5 screws from 4 corners of the unit and 1 screw from the center. (Fig. 1)
4. By your thumbs of both hand, push up the bottom of the back lid and remove the back lid.
5. Remove the 5 (Tuner, VR, Bass, Treble, Mic VR) knobs from each shafts.
6. Remove 2 screws (Pan Hd. tapping 3 x 10 and 3 x 35) on the both side of the chassis. Remove a screw (Pan Hd. 3 x 10) near the power trans. Remove a screw (Pan Hd. tapping 3 x 10) on the right side of the amplifier PCB. (Fig. 2).
7. Remove the aerial tip on the left side of the tuner PCB. Remove the 2 plugs on the upper side of the amplifier PCB.
8. Carefully remove the chassis from the cabinet.

ADJUSTMENT OF PINCH ROLLER

1. Set the unit to the PLAY mode.
2. Apply a tension gauge to the pinch roller. Read the gauge at the precise moment when the pinch roller separates from the capstan.
3. If the gauge reading is within a range of 450 - 650 g, no adjustment is necessary. If otherwise, make adjustment by changing the force of the spring coil.(See exploded view No. 28)

TORQUE ADJUSTMENT

1. Set the unit to the PLAY, FAST FORWARD or REWIND mode.
2. Measure the each torque with a torque gauge. They should be as following;

PLAY	30 - 60 g/cm
FAST FORWARD	60 - 110 g/cm
REWIND	60 - 110 g/cm

3. If the each torque fails to reach the standard value. Clean the drive belt, flywheel, motor pulley, take-up reel, idler and rewind roller with a cotton swab soaked in alcohol.

ADJUSTMENT OF HEAD AZIMUTH

1. Connect the unit to a power source and insert a test cassette tape (7K Hz pre-recorded) in the cassette compartment.
2. Connect an 8 ohm dummy load with the VTVM across it to the EXT. SP jack on the unit.
3. Set the unit into the PLAY mode and turn the tone control knob untill maximum.
4. Turn the head azimuth adjusting screw until the maximum value with reading on the VTVM.
5. Fasten the adjusting screw securely by applying paint or glue.

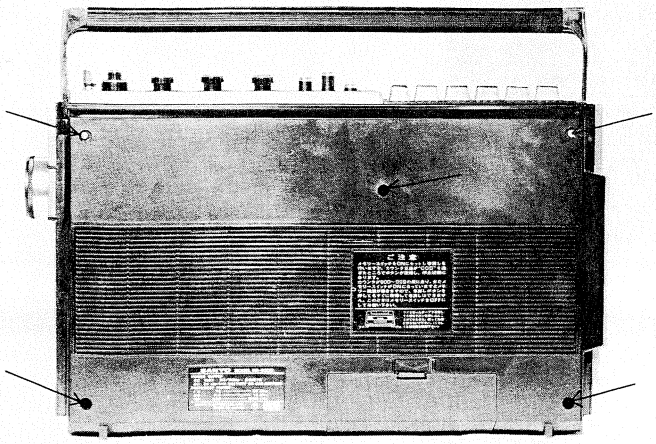


Fig. 1

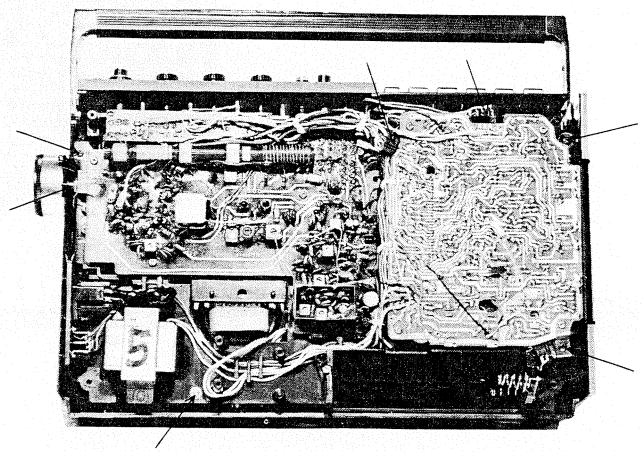
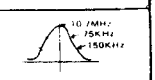
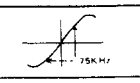


Fig. 2

TUNER ADJUSTMENT

FM ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I. F.	Connect sweep generator to FM aerial terminal	Connect oscilloscope to test point	10.7 MHz (none modulation)	Near max. capacity of VC. at position with no unrequired signal.	T1 to T4	
2	Ratio Det.		Connect oscilloscope to test point			T5	
3	O. S. C.	Connect FM SG. to FM aerial. Terminals.	Connect VTVM to speaker terminal.	87 MHz (400 Hz 30% modulation)	Low end of dial scale	L7	Max.
4				109MHz (400 Hz 30% modulation)	High end of dial scale	CT2	
5	AERIAL	Connect FM SG. to FM aerial. Terminals.	Connect VTVM to speaker terminal.	90 MHz (400 Hz 30% modulation)	90 MHz on dial scale	L4 and L5	Max.
6				108 MHz (400 Hz 30% modulation)	108 MHz on dial scale	CT1	
7	Repeat adjustments.						

PREPARE:
1. Variable Capacitors completely closed.
2. Set the dial pointer to very left line of dial scale.
3. Connect sweep generator, FM SG, VTVM and oscilloscope. FM aerial input impedance is 75 ohm.
4. Use a screwdriver with plastic grip for all adjustments.

MW ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I. F.	Connect sweep generator to TEST LOOP.	Connect oscilloscope to to EXT. SP.	455 KHz (400 Hz 30% modulation)	Low end of dial scale. at position of no unrequired signal.	T6～T8	Max.
2	O. S. C	Connect A. M. SG to TEST LOOP.	Connect VTVM to EXT. SP terminals	505 KHz (400 Hz 30% modulation)	Low end of dial scale	L13	Max.
3				1650 KHz (400 Hz 30% modulation)	High end of dial scale	CT-6	
4	AERIAL	Connect A. M. SG to TEST LOOP	Connect VTVM to EXT. SP terminals	600 KHz (400 Hz 30% modulation)	600 KHz on dial scale	L10	Max.
5				1400 KHz (400 Hz 30% modulation)	1400 KHz on dial scale	CT-4	
6	Repeat adjustment						

PREPARE: 1. Variable capacitor completely closed.
2. Set the dial pointer to very left line on dial scale.
3. Use a screwdriver with plastic grip for all adjustments.
4. Selector switch to "MW".

SW 1 ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	O. S. C	Connect AM SG to aerial terminal through IRE dummy.	Connect VTVM to EXT. SP. terminals.	2.2 MHz (400 Hz 30% modulation)	Low end of dial scale.	L14	MAX.
2				7.2 MHz (400 Hz 30% modulation)	High end of dial scale.	CT-7	
3	AERIAL	Connect AM SG to aerial terminal through IRE dummy.	Connect VTVM to EXT. SP. terminals.	2.5 MHz (400 Hz 30% modulation)	2.5 MHz on dial scale	L11	MAX.
4				6.5 MHz (400 Hz 30% modulation)	6.5 MHz on dial scale.	CT-3	
5	Repeat adjustments.						

PREPARE: 1. Variable capacitor completely closed.
2. Set the dial pointer to very left line dial scale.
3. Connect signal generator to dummy aerial.
4. Use screwdriver with plastic glip for all adjustments.
5. Selector switch to "SW 1".

SW 2 ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	O. S. C.	Connect AM SG to aerial terminal, through IRE dummy.	Connect VTVM to EXT. SP. terminals.	6.8 MHz (400 Hz 30% modulation)	Low end of dial scale.	L15	MAX.
2				22.7 MHz (400 Hz 30% modulation)	High end of dial scale.	CT-8	
3	AERIAL	Connect AM SG. to aerial terminal through IRE dummy.	Connect VTVM to EXT. SP. Terminals.	7.5 MHz (400 Hz 30% modulation)	7.5 MHz on dial scale	L12	MAX.
4				21.5 MHz (400 Hz) 30% modulation)	21.5 MHzon dial scale.	CT-5	
5	Repeat adjustments.						

PREPARE: 1. Variable capacitor completely closed.
2. Set the dial pointer to very left line dial scale.
3. Connect signal generator to dummy aerial.
4. Use screwdriver with plastic glip for all adjustments.
5. Selector switch to "SW2".

PARTS LIST

Part No.	Description	Q'ty
PACKING		
141-6-132T-52202	Individual carton	1
141-6-144T-18400	Styrol filler, Right side	1
141-6-144T-18500	Styrol filler, Left side	1
141-6-411T-57700	Instruction booklet	1
123-6-453R-00100	Inspection sheet	2
141-6-472T-05603	Caution label, 240V unit only	1
141-6-415T-08001	Notice, Top lid	1
141-6-415T-05601	Notice, Handle mtg.	1
141-6-141T-04200	Display carton	1
	Polyethylene bag 380 x 600 mm, unit	1
	Polyethylene bag 200 x 350 mm, Instruction book	1
141-6-472T-05602	Caution label, Except 240V unit	1
ACCESSORY		
4-235R-11801	Socket, Siemense 2 pin type	1
4-235R-11802	Socket, England 2 pin type	1
4-243T-76401	Power cord 250V 3A	1
4-241T-04900	Cassette tape C-12	1
CABINET		
141-0-111T-08800	Front cabinet assembly	1
141-0-124T-01400	Cassette compartment lid assembly	1
141-0-134T-01300	Head cover assembly	1
141-0-126T-01002	Back lid assembly	1
141-0-128T-00800	Battery lid assembly	1
141-2-858T-05101	Bracket, Stepper spring mtg.	1
141-2-852T-25300	Spring wire, Stepper spring	1
141-2-372T-01901	Bracket, SP mtg.	2
141-2-224T-06400	Bracket, Cassette compt. lid fulcrum	2
141-2-243T-02700	Base, Cassette compt. lid fulcrum	2
141-0-161T-01900	Push button assembly, Dial light switch	1
141-2-851T-75900	Spring coil, Dial light switch	1
141-2-382T-01200	Terminal, Dial light switch	1
141-2-853T-29000	Spring plate, Cassette compt. lid	1
141-2-384T-00200	Bracket, Rod aerial mtg.	1
123-2-455R-01400	Rubber cushion, MIC pilot lamp mtg.	1
141-2-161T-20700	Push button, PAUSE	1
141-0-161T-02000	Push button assembly, Band select	4
141-0-163T-06500	Rotary knob assembly, VR, Treble, Bass	3
141-0-163T-06600	Rotary knob assembly, MIC VR	1
141-0-163T-06700	Rotary knob assembly, Source VR	1
141-0-163T-06800	Rotary knob assembly, Tuning	1
141-0-163T-07800	Rotary knob assembly, Fine tuning	1
141-2-853T-37300	Spring plate, FINE TUNING	1
141-2-143T-17300	Marking plate, Voltage select plug	1
141-2-132T-03800	Sign window, Voltage select cover	1
CHASSIS		
141-0-311T-03900	Chassis assembly	1
141-2-569T-00100	Guide shaft, Rope	2
141-2-336T-04903	Terminal battery, (+)	2
141-2-336T-06800	Terminal battery, (−)	2
	Plastic cushion 15 x 40 x 10 mm, Meter	1
	Felt cushion 6 x 10 x 10 mm, Tuner Chassis	1
	Rubber cushion 7 x 8 x 3 mm, Back lid Chassis	1
141-0-566T-00500	Tuning shaft assembly	1
141-2-457T-04200	Special washer, Tuning shaft	1
123-2-415R-10100	Hexagon nut, Tuning shaft	1
141-2-421T-14000	Special screw, Rope guide	2
141-2-852T-25400	Spring wire, REC/PLAY	1
141-2-377T-12900	Bracket, AMP P.C.B.mtg.	1
141-2-243T-05200	Base, AC socket	1
141-2-472T-04401	Lug, VR earth	1
141-2-374T-08400	Bracket, Dial P.L	1
123-2-538R-01000	Drum	1
141-2-425T-00100	Hexagon screw, Drum	1
	Dial rope 0.5 x 850, Dial	1
141-2-851T-06300	Spring coil, Dial rope	1
141-2-146T-01502	Dial scale	1
141-0-511T-00300	Pointer assembly	1

Part No.	Description	Q'ty
CHASSIS		
141-2-374T-07600	Bracket, Dial P.L	1
141-2-241T-13300	Veil, Slide switch	5
141-2-411T-03500	Plate nut, P.T mtg.	2
141-2-385T-01301	Bracket, MIC mtg.	1
141-2-365T-23700	Bracket, Front switch mtg.	1
141-0-741T-13000	Lever assembly, Lever switch	5
	Felt cushion 8 x 15 x 15 mm, TUNER P.C.B	1
	Rubber cushion 3 x 7 x 20 mm, PT	1
	Rubber cushion 7 x 8 x 3 mm, Chassis to PT	2
141-2-243T-05100	Base, Lead retainer	2
	Felt cushion 8 x 15 x 15 mm, Cabinet to Chassis	1
	Soft tape 15 x 40 x 5 mm, Chassis	1
123-2-363R-10101	Bracket, FINE TUNING	1
	Felt cushion 6 x 10 x 10 mm, Chassis to SP	1
ELECTRICAL PARTS		
4-224R-20100	Fine tuning	1
4-244T-00900	Telescopic aerial	1
123-2-472R-01000	Lug, telescopic aerial	1
4-243T-11377	Lead, telescopic aerial	1
4-251T-33700	Power transformer 120/200/240V	1
4-151T-12700	Speaker 6" x 4"	1
4-511T-05100	Meter, VU/TUN/BATT	1
4-153T-07900	Inner microphone	1
4-235T-26800	Socket, Power supply	1
141-2-135T-32200	Cover, Socket mtg.	1
4-235T-03300 / 4-236T-01300	Socket / Plug) Pair	1
4-235T-14600 / 4-236T-03800	Socekt / Plug) Pair) or	1
4-612T-02611	Indicator, MIC	1
4-612T-02605	Indicator, Dial scale	1

Key. No.	Part No.	Description	Q'ty
CONTROL PCB ASSY			
	4-226T-64399	Printed circuit board assembly, CONTROL	1
VR703,704 705	4-222T-33800	Variable resistor 50KW, VR, Treble, Base	3
VR701,702	4-222T-33700	Variable resistor 50KA/10KA Mic VR, Source VR	1
		RESISTORS	
R748		Carbon 2.2K ±10% ¼W	1
R750		Carbon 4.7K ±10% ¼W	1
R707,794		Carbon 5.6K ±10% ¼W	2
R749		Carbon 6.8K ±10% ¼W	1
		CAPACITORS	
C724		Mylar 0.0033μF ±20% 50WV	1
C725,727		Mylar 0.033μF ±20% 50WV	2
C726		Mylar 0.082μF ±20% 50WV	1
OPERATION PCB ASSY			
	4-226T-59899	Printed circuit board assembly, OPERATION	1
	4-231T-41900	Slide switch, Radio ON/OFF	1
	4-231T-41800	Slide switch, MIX,MIC	2
	4-231T-42200	Slide switch, MEMORY	1
	4-231R-12100	Slide switch, AFC, SLEEP, METER	1
		RESISTORS	
R739		Carbon 5.6KΩ ±10% ¼W	1
R740		Carbon 6.8KΩ ±10% ¼W	1
R708		Carbon 15KΩ ±10% ¼W	1
R786		Carbon 33KΩ ±10% ¼W	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

PARTS LIST

Key No.	Part No.	Description	Q'ty
AMP PCB ASSY			
	4-226T-64299	Printed circuit board assembly, AMP	1
	4-254T-11400	Input transformer	1
	4-254T-11500	Output transformer	1
	4-258T-07100	OSC coil Bias	1
L703	4-253T-03400	Coke coil 5.6mH Pre-emphasis	1
L704	4-252T-02200	Choke coil 100μH, Noise cut	1
	4-235T-26400	Socket, Input & Output	1
	4-231T-42100	Beat cancel switch	1
	4-231T-11301	R/P switch	1
	4-243T-04371	Lead, SP	1
	4-243T-04372	Lead, SP	1
Q701,703 706		Transistor 2SC644	3
Q702,704 707,708 713,714		Transistor 2SC945 or 2SC828	6
Q705,709		Transistor 2SC945	2
Q710,711		Transistor 2SD359	2
Q712		Transistor 2SB187	1
Q717		Transistor 2SC1383	1
D701,702 703,704		Diode 1S188 AM	4
D705		Varistor MA-26	1
D706,707		Diode DS-131, + output	1
D708,709		Diode DS-132, − output	1
		RESISTORS	
R764		Wire wound 0.22Ω ±10% ¼W	1
R757		Carbon 3.3Ω ±10% ¼W	1
R801		Carbon 8.2Ω ±10% ¼W	1
R735,766		Carbon 10Ω ±10% ¼W	2
R763,802		Carbon or Solid 15Ω ±10% ½W	2
R725		Carbon 47Ω ±10% ¼W	1
R746,765		Carbon 82Ω ±10% ¼W	2
R714,743		Carbon 100Ω ±10% ¼W	2
R751,759		Carbon 120Ω ±10% ¼W	2
R762		Carbon 150Ω ±10% ¼W	1
R706,772		Carbon 270Ω ±10% ¼W	2
R747,799		Carbon 330Ω ±10% ¼W	2
R790		Carbon 390Ω ±10% ¼W	1
R737,760 780,781		Carbon 560Ω ±10% ¼W	4
R722,745 779,805		Carbon 680Ω ±10% ¼W	4
R702,703 721,778 784		Carbon 1KΩ ±10% ¼W	5
R742,774		Carbon 1.2KΩ ±10% ¼W	2
R715,806		Carbon 1.8KΩ ±10% ¼W	2
R795		Carbon 2.2KΩ ±10% ¼W	1
R730,775		Carbon 2.7KΩ ±10% ¼W	2
R716,753		Carbon 3.9KΩ ±10% ¼W	2
R711,734		Carbon 4.7KΩ ±10% ¼W	2
R729,758		Carbon 5.6KΩ ±10% ¼W	2
R724,777 804		Carbon 6.8KΩ ±10% ¼W	3
R727		Carbon 8.2KΩ ±10% ¼W	1
R710		Carbon 10KΩ ±10% ¼W	1
R709,797		Carbon 15KΩ ±10% ¼W	2
R713,718 756,783		Carbon 18KΩ ±10% ¼W	4
R738,796		Carbon 22KΩ ±10% ¼W	2
R712,773		Carbon 39KΩ ±10% ¼W	2
R717,719 755		Carbon 47KΩ ±10% ¼W	3
R731,736 800		Carbon 56KΩ ±10% ¼W	3
R782		Carbon 68KΩ ±10% ¼W	1
R744,776		Carbon 82KΩ ±10% ¼W	2
R701,728		Carbon 100KΩ ±10% ¼W	2
R732		Carbon 120KΩ ±10% ¼W	1
R741		Carbon 150KΩ ±10% ¼W	1
R733		Carbon 330KΩ ±10% ¼W	1
R704,752		Carbon 560KΩ ±10% ¼W	2
R726		Carbon 1MΩ ±10% ¼W	1

Key. No.	Part No.	Description	Q'ty
AMP PCB ASSY			
		CAPACITORS	
C716,745		Mylar 0.0022μF ±20% 50WV	2
C772		Mylar 0.0033μF ±20% 50WV	1
C701,766		Mylar 0.0047μF ±20% 50WV	2
C746		Mylar 0.0068μF ±20% 50WV	1
C777		Mylar 0.01μF ±20% 50WV	1
C733,734 773		Mylar 0.022μF ±20% 50WV	3
C776		Mylar 0.047μF ±20% 50WV	1
C715,749 765		Mylar 0.068μF ±20% 50WV	3
C703,759		Ceramic 220pF ±20% 50WV	2
C720		Ceramic 330pF ±20% 50WV	1
C713,774		Ceramic 470pF ±20% 50WV	2
C780,781 782,783		Ceramic 0.01μF +80-20% 50WV	4
C775		Electrolytic 0.1μF 10WV	1
C711,752		Electrolytic 0.22μF 10WV	2
C710		Electrolytic 0.33μF 10WV	1
C712,730		Electrolytic 1μF 25WV	2
C755		Electrolytic 2.2μF 10WV	1
C702,704 706,708 714,718 719,721 723,751 753		Electrolytic 2.2μF 25WV	11
C717,729 748,750 754,767		Electrolytic 4.7μF 10WV	6
C784		Electrolytic 4.7μF 25WV	1
C771		Electrolytic 22μF 10WV, Low temperature	1
C707		Electrolytic 100μF 6.3WV	1
C738		Electrolytic 100μF 10WV	1
C709,740 747		Electrolytic 220μF 6.3WV	3
C737		Electrolytic 220μF 10WV	1
C705,722		Electrolytic 330μF 6.3WV	2
C731		Electrolytic 470μF 10WV	1
C732		Electrolytic 1000μF 10WV	1
C735,769		Electrolytic 2200μF 10WV	2
TUNER PCB ASSY			
	4-226T-64499	Printed circuit board assembly, TUNER	1
L10,11	4-257T-08111	Aerial coil assembly, MW, SW1	1
L12	4-257R-26930	Aerial coil, SW2	1
L13	4-258R-05640	OSC coil MW	1
L14	4-258R-25000	OSC coil SW1	1
L15	4-258T-07500	OSC coil SW2	1
	4-224T-04600	Variable capacitor	1
CT5,6 7,8	4-224R-11600	Trimmer	4
L1	4-265R-11600	V.H.F coil, Aerial trap	1
L2	4-265R-00600	V.H.F coil, Aerial	1
L3	4-265R-01200	V.H.F coil, RF trap	1
L4,5	4-265R-13600	V.H.F coil, RF	2
L6,16	4-265R-12700	V.H.F coil, IF trap SW1	2
L7	4-265R-11500	V.H.F coil, OSC	1
L8	4-265R-10600	V.H.F coil, SW aerial	1
L9	4-255R-10700	Choke coil 15μH, SW aerial	1
T1	4-256T-05140	I.F.T	1
T2,3	4-256T-04640	I.F.T	2
T4	4-256T-04540	I.F.T	1
T5	4-256T-04040	I.F.T	1
T6	4-256T-04140	I.F.T	1
T7	4-256T-05440	I.F.T	1
T8	4-256T-03740	I.F.T	1
S1-1 1-8	4-231T-44900	Push button, Band select	1
	123-2-382R-00200	Terminal, T.P	2
	141-2-382T-00600	Terminal	5
	123-2-474R-00200	Chip plug, Telescopic aerial connection	1
	123-2-471R-10900	Core, Q3 emitta base	2
	123-2-445R-00200	Cushion, VC mtg.	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
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3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

PARTS LIST

Key. No.	Description	Q'ty
TUNER PCB ASSY		
Q1	Transistor 2SC930 E, RF	1
Q2,3	Transistor 2SC930 D, Conv. MIX OSC	2
Q4	Transistor 2SC929 D, Conv. AM	1
Q5,7	Transistor 2SC930 D, IF	2
Q6	Transistor 2SC930 E, IF	1
Q8	Transistor 2SA628 E, Tuning meter	1
D1,3,4,6,13,14	Diode DS-442	6
D2	Diode 1S553, AFC	1
D5,7,8,9,10	Diode 1N60, AM	5
D11,12	Diode 1N60, FM pair	2
D15	Diode 1S330 A1	1
	RESISTORS	
R111,118,120 121,123	Carbon 10Ω ±10% ¼W	5
R115	Carbon 12Ω ±10% ¼W	1
R327	Carbon 27Ω ±10% ¼W	1
R309	Carbon 33Ω ±10% ¼W	1
R303	Carbon 68Ω ±10% ¼W	1
R122,324	Carbon 82Ω ±10% ¼W	2
R126	Carbon 100Ω ±10% ¼W	1
R307	Carbon 150Ω ±10% ¼W	1
R316	Carbon 270Ω ±10% ¼W	1
R302,305,310	Carbon 330Ω ±10% ¼W	3
R101,105	Carbon 470Ω ±10% ¼W	2
R314,330	Carbon 560Ω ±10% ¼W	2
R103,315,318 319	Carbon 1KΩ ±10% ¼W	4
R106	Carbon 1.2KΩ ±10% ¼W	1
R113	Carbon 1.5KΩ ±10% ¼W	1
R317	Carbon 2.2KΩ ±10% ¼W	1
R313,321,322	Carbon 5.6KΩ ±10% ¼W	3
R117,119,127 301,311,325	Carbon 6.8KΩ ±10% ¼W	6
R323,328	Carbon 8.2KΩ ±10% ¼W	2
R312	Carbon 10KΩ ±10% ¼W	1
R102,104,107 112,125,308	Carbon 15KΩ ±10% ¼W	6
R326	Carbon 18KΩ ±10% ¼W	1
R329	Carbon 39KΩ ±10% ¼W	1
R304	Carbon 47KΩ ±10% ¼W	1
R108,109	Carbon 100KΩ ±10% ¼W	2
R124	Carbon 150KΩ ±10% ¼W	1
R306	Carbon 470KΩ ±10% ¼W	1
R320	Carbon 1MΩ ±10% ¼W	1
	CAPACITORS	
C324	Electrolytic 0.22μF ±20% 10WV	1
C121,331	Electrolytic 0.47μF ±20% 10WV	2
C327	Electrolytic 1μF +150 -0% 10WV	1
C307	Electrolytic 4.7μF +150 -0% 16WV	1
C323,333	Electrolytic 330μF +100 -0% 6.3WV	2
C129	Styrol 350pF ±5% 25 or 50WV	1
C130	Styrol 1300pF ±5% 25 or 50WV	1
C131	Styrol 4100pF ±5% 25 or 50WV	1
C136	Mylar 0.0022μF ±20% 50WV	1
C133,330	Mylar 0.0033μF ±20% 50WV	2
C125,127	Mylar 0.0047μF ±20% 50WV	2
C134	Mylar 0.0068μF ±20% 50WV	1
C126,317,318	Mylar 0.01μF ±20% 50WV	3
C120,304,308 320,325,334	Mylar 0.022μF ±20% 50WV	6
C321,335	Mylar 0.047μF ±20% 50WV	2
C312	Ceramic 1pF ±0.25pF 50WV	1
C118,306,314	Ceramic 2pF ±0.25pF 50WV	3
C123,124	Ceramic 3pF ±0.5pF 50WV	2
C313	Ceramic 4pF ±0.5pF 50WV	1
C115,140	Ceramic 5pF ±0.5pF 50WV	2
C139	Ceramic 6pF ±0.5pF 50WV	1
C119	Ceramic 7pF ±0.5pF 50WV	1
C138	Ceramic 10pF ±10% 50WV	1
C128	Ceramic 10pF ±10% 50WV N3300	1
C104,117	Ceramic 15pF ±10% 50WV	2
C103	Ceramic 20pF ±10% 50WV	1
C109	Ceramic 22pF ±10% 50WV	1
C102	Ceramic 30pF ±10% 50WV	1
C315	Ceramic 33pF ±10% 50WV	1
C319,337,338	Ceramic 100pF ±10% 50WV	3

Key No.	Part No.	Description	Q'ty
TUNER PCB ASSY			
C326,328		Ceramic 220pF ±10% 50WV	2
C105,110		Ceramic 470pF ±10% 50WV	2
C112,114		Ceramic 0.001μF +80-20% 25 or 50WV	2
C106,107 116,301 303		Ceramic 0.01μF +80-20% 25 or 50WV	5
C305,309 310,336		Ceramic 0.022μF +80-20% 25 or 50WV	4
C108,111 113,302 311,316 322,329 332		Ceramic 0.04μF +80-20% 25 or 50WV	9
SCREW MOUNTING			
		Pan head screw 2x6 mm	1
		Pan head screw 2x8 mm	2
		Pan head screw 2.6x4 mm	2
		Pan head screw 2.6x16 mm	2
		Pan head screw 3x6 mm	2
		Pan head screw 3x8 mm	2
		Pan head screw 3x12 mm	1
		Pan head screw 3x14mm	2
		Flat head screw 2.6x4 mm	8
		Tapping screw 2.3x8 mm	2
		Tapping screw 3x8 mm	14
		Tapping screw 3x10 mm	13
		Tapping screw 3x14 mm	2
		Tapping screw 3x16mm	4
		Tapping screw 3x20 mm	2
		Tapping screw 3x35 mm	2
		Tapping screw 3x40 mm	1
		Washer 2.5 mm	2
		Washer 2 mm	1
		Washer 2.6 mm	1
		Washer 3 mm	1
		Washer 3.3x8x0.5mm	2
		Nut 2 mm	1
		External tooth lock washer 2 mm	1
		Fiber washer 3x12x1 mm	1
		Fiber washer 3.3x8x1 mm	8
		Tapping screw with washer 3x8 mm	13
MECHANISM			
1	141-0-311T-03300	Chassis assembly	1
2	141-2-853T-35300	Spring plate, Cassette pressure	1
3	4-231T-35002	Power supply switch	1
4	141-0-531T-01600	Reel plate assembly, Take up	1
5	141-0-531T-01700	Reel plate assembly, Supply	1
6	141-2-811T-03500	Counter	1
7	141-2-812T-03500	Bracket, Counter mtg.	1
8	141-2-564T-11900	Square belt, Counter	1
9	4-527T-05800	DC motor	1
10	141-0-661T-01300	Motor pulley assembly	1
11	141-0-378T-00200	Bracket assembly, Motor mtg.	1
12	141-2-322T-19200	Shield plate, Motor	1
13	141-2-421T-12500	Special screw, Motor mtg.	2
14	141-2-445T-11801	Rubber cushion, Motor mtg.	20
15	141-0-521T-02900	Flywheel assembly	1
16	141-0-524T-02300	Bracket assembly, Flywheel	1
17	141-2-457T-04300	Special washer, Prevent the oil up	
18	141-2-472T-01000	Lug, Earth lead	2
19	141-2-564T-12100	Square belt, Main	10
20	141-2-741T-63400	Lever, Brake operation	1
21	141-2-741T-63500	Brake lever	1
22	141-2-465T-10100	Stopper, Brake	1
23	141-2-851T-63800	Spring coil, Brake lever pressure	1
24	141-0-731T-06200	Head slide assembly	1
25		Steel ball 2 mm	4
26	141-2-853T-28801	Spring plate, Head slide fixer	1
27	141-0-545T-00700	Pinch roller lever assembly	1
28	141-2-852T-09400	Spring wire, Pinch roller lever pressure	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

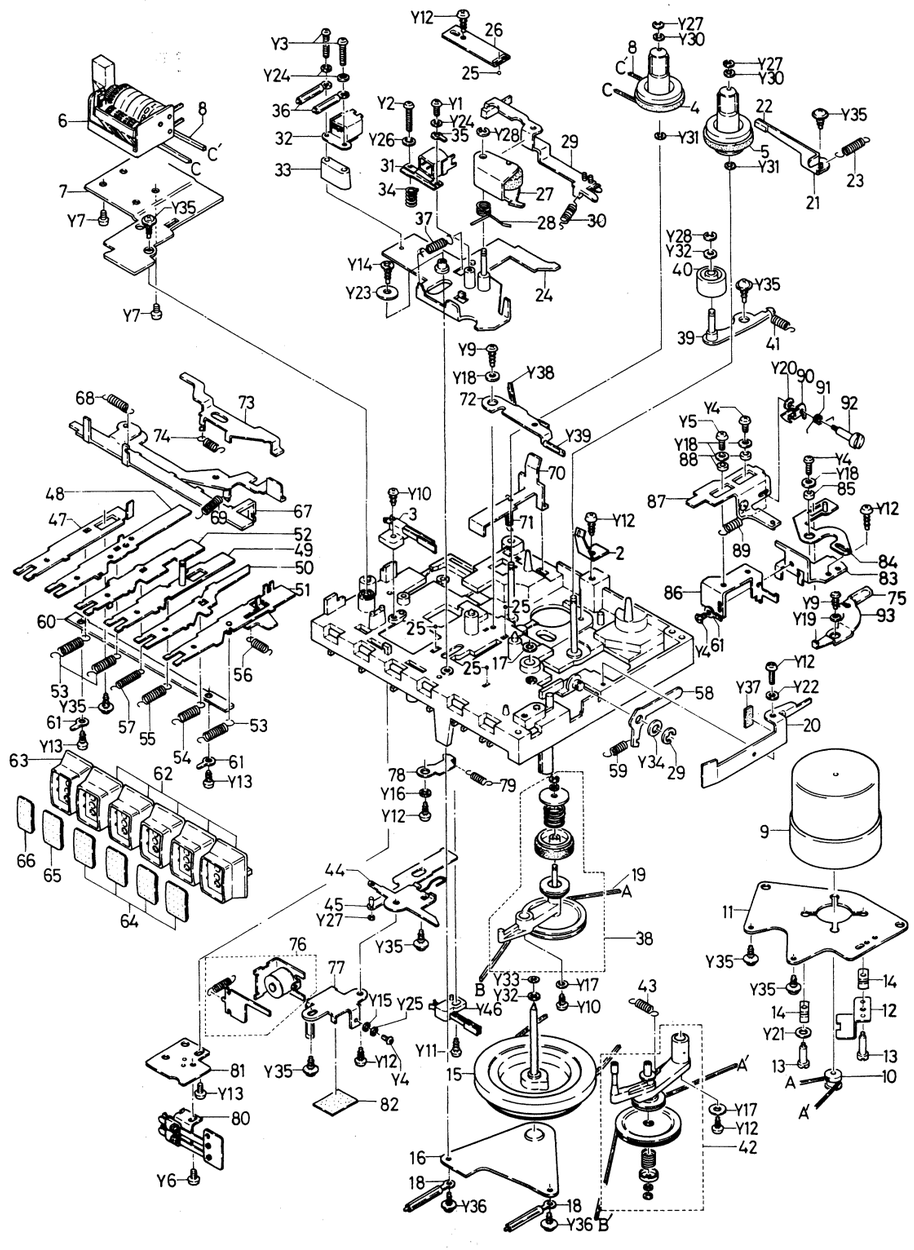
PARTS LIST

Key No.	Part No.	Description	Q'ty
MECHANISM			
29	141-0-721T-01100	Shut-off lever assembly	1
30	141-2-851T-77500	Spring coil, (29) returning	1
31	4-242T-17000	R/P head	1
32	4-242T-07700	E head	1
33	141-2-461T-17200	Pipe, E head	1
34	141-2-851T-49700	Spring coil, R/P head adjust	1
35	123-2-472R-00200	Lug, Head earth	1
36	141-2-472T-02200	Lug, E head lead retainer	2
37	141-2-851T-63100	Spring coil, Play slide	1
38	141-0-741T-09400	Lever assembly, REW & F.FWD	1
39	141-0-741T-05700	Lever assembly, Relay pulley	1
40	141-2-661T-17400	Pulley, Relay	1
41	141-2-851T-68000	Spring coil, (39) returning	1
42	141-0-741T-09300	Lever assembly, FWD	1
43	141-2-851T-63800	Spring coil, (42) returning	1
44	141-0-741T-11300	Lever assembly, REW F.FWD operation	1
45	141-0-731T-08000	Slide assembly, F.FWD power SW	1
46	4-231T-36900	Switch, F.FWD	1
47	141-2-731T-24700	Review slide	1
48	141-2-731T-24800	Record slide	1
49	141-0-731T-05700	Slide assembly, Play	1
50	141-2-731T-25100	F.Forward slide	1
51	141-0-731T-05800	Slide assembly, Stop	1
52	141-2-731T-24901	Rewind slide	1
53	141-2-851T-63900	Spring coil, Review Stop F.FWD REC slide returning	4
54	141-2-737T-03400	Bracket, Push button slide press	1
55	141-2-851T-58700	Spring coil, Play slide returning	1
56	141-2-851T-56100	Spring coil, Lever (51) returning	1
57	141-2-851T-31500	Spring coil, REW slide returning	1
58	141-2-741T-47800	Lever, Cassette up	1
59	141-2-851T-56100	Spring coil, Lever (58) returning	1
60	141-2-737T-03200	Bracket, Push button slide press	1
61	123-2-472R-00400	Lug, Flywheel earth lead Lever (78) returning	2
62	141-2-161T-18800	Push button, Except Review button	5
63	141-2-161T-18900	Push button, Review	1
64	141-2-157T-19200	Inlay, Except REC REVIEW	4
65	141-2-157T-19201	Inlay, REC button	1
66	141-2-157T-19400	Inlay, REVIEW button	1
67	141-0-731T-05600	Slide assembly, Lock slide	1
68	141-2-851T-64000	Spring coil, Slide (67) returning	1
69	141-2-851T-77000	Spring coil, (67) lever returning	1
70	141-2-741T-64100	Lever, Prevent the miss recording	1
71	141-2-851T-45400	Spring coil, Lever (70) returning	1
72	141-2-741T-47701	Brake lever	1
73	141-2-741T-57000	Lever, Review operation	1
74	141-2-851T-70400	Spring coil, Lever (73) returning	1
75	141-2-465T-11200	Stopper, Chassis	1
76	4-264T-04000	Solenoid, Memory REW PLAY operation	1
77	141-2-369T-02700	Bracket, Solenoid mtg.	1
78	141-2-741T-57200	Lever, Prevent the Review when REC	1
79	141-2-851T-56100	Spring coil, Lever (78) returning	1
80	4-231T-42400	Switch, At REW Motor, Memory REW ON	1
81	141-2-365T-21901	Bracket, SW mtg.	1
82	141-2-352T-07900	Spacer, Solenoid fixer	1
83	141-2-737T-03000	Bracket, Pause slide mtg.	1
84	141-0-741T-12500	Lever assembly, PAUSE	1
85	141-2-683T-21900	Ring, Lever (84) fixer	1
86	141-0-737T-00100	Bracket assembly, PAUSE	1
87	141-0-731T-07800	Slide assembly	1
88	141-2-683T-24000	Ring, (87) Slide guide	2
89	141-2-851T-28100	Spring coil, Slide (87)	1
90	141-2-671T-04300	Cam	1
91	141-2-852T-26100	Spring wire, Cam	1
93	141-2-741T-61500	Pause lever	1
94	141-2-464T-08700	Fixer, Motor lead	1
95	141-2-853T-35100	Spring plate, Play Auto stop contact	1
96	141-2-352T-08700	Spacer	1
97	4-237T-05800	Terminal board, Lead retainer	1

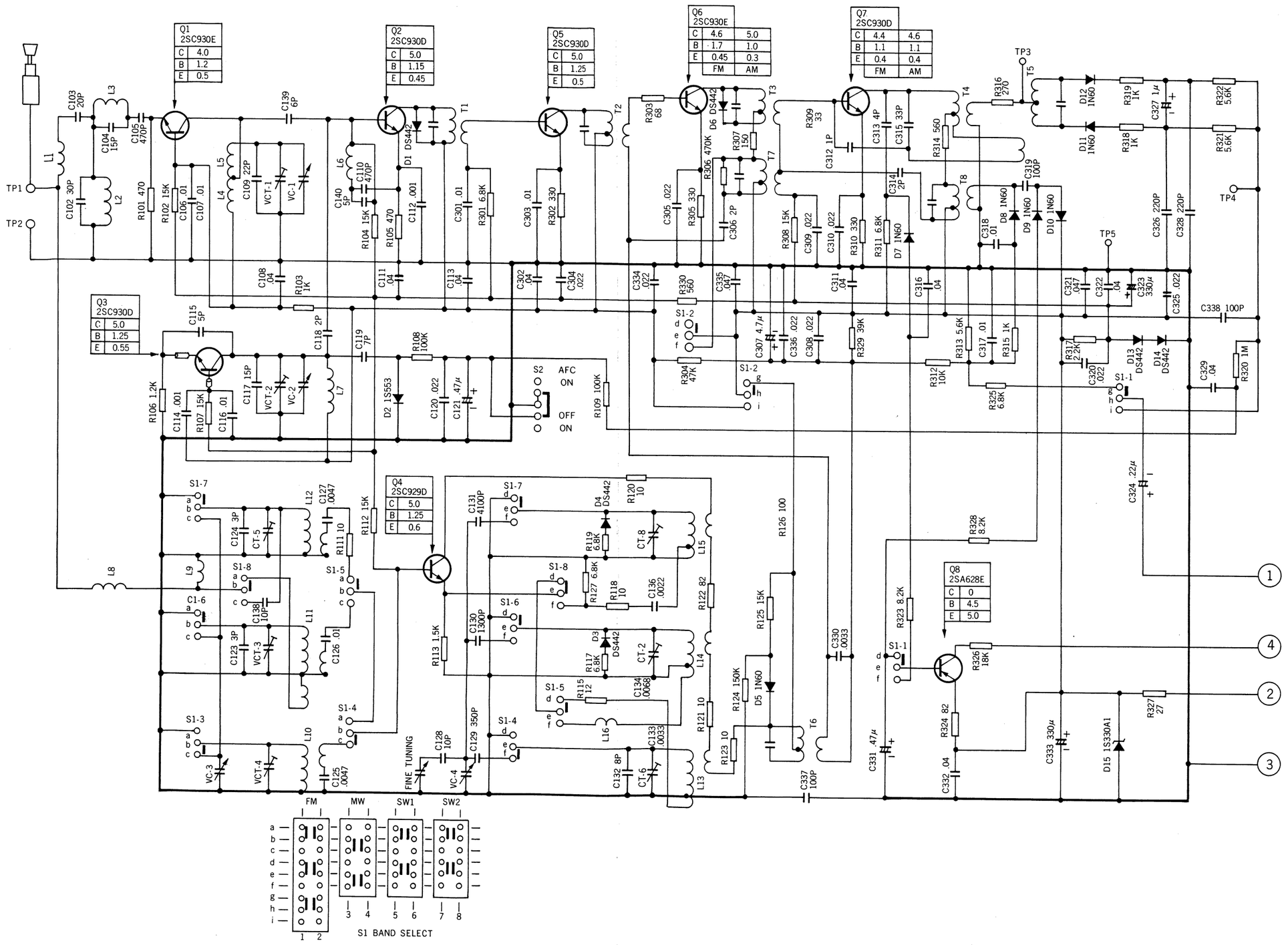
Key. No.	Part No.	Description	Q'ty
MECHANISM SCREW			
Y1		Pan head screw 2x6 mm	1
Y2		Pan head screw 2x8 mm	1
Y3		Pan head screw 2x12 mm	2
Y4		Pan head screw 2.6x4 mm	5
Y5		Pan head screw 2.6x8 mm	1
Y6		Pan head screw 3x4 mm	1
Y7		Pan head screw 3x6 mm	2
Y8		Flat head screw 2x6 mm	1
Y9		Tapping screw 2.3x4 mm	1
Y10		Tapping screw 2.3x6 mm	2
Y11		Tapping screw 2.3x8 mm	2
Y12		Tapping screw 3x6 mm	5
Y13		Tapping screw 3x8 mm	3
Y14		Flat head tapping screw 3x6 mm	1
Y15		Washer 2.8x5x0.5 mm	1
Y16		Binding head self-tapping screw 3x6 mm	1
Y17		Washer 2.3x6x0.4 mm	2
Y18		Washer 2.6x7.5x0.5 mm	4
Y19		Washer 2.6x8x0.5 mm	1
Y20		Washer 3x6x1 mm	1
Y21		Washer 3x8x0.5 mm	1
Y22		Washer 3x10x0.5 mm	1
Y23		Washer 4x10x0.8 mm	1
Y24		Spring washer 2 mm	3
Y25		Spring washer 2.6 mm	1
Y26		Internal tooth lock washer 2.6 mm	1
Y27		External "E" ring 1.5 mm	2
Y28		External "E" ring 2 mm	2
Y29		External "E" ring 3 mm	1
Y30		Graphite nylon washer 2.1x4x0.25 mm	2
Y31		Graphite nylon washer 2.1x4x0.5 mm	2
Y32		Graphite nylon washer 2.6x4.7x0.25 mm	2
Y33		Graphite nylon washer 2.6x4.7x0.5 mm	1
Y34		Graphite nylon washer 5.2x8x0.5 mm	1
Y35		Tapping screw with washer 3x6 mm	8
Y36		Tapping screw with washer 3x8 mm	2
Y37		Sponge cushion (Double face) 8x8x3 mm	2
Y38		Rubber cushion 3x7x1 mm	1
Y39		Vinyl tube 2.5x14.5 mm	1
Y40		Shrink tube 3x8 mm	1
Y41		UL tube 4 mm	1

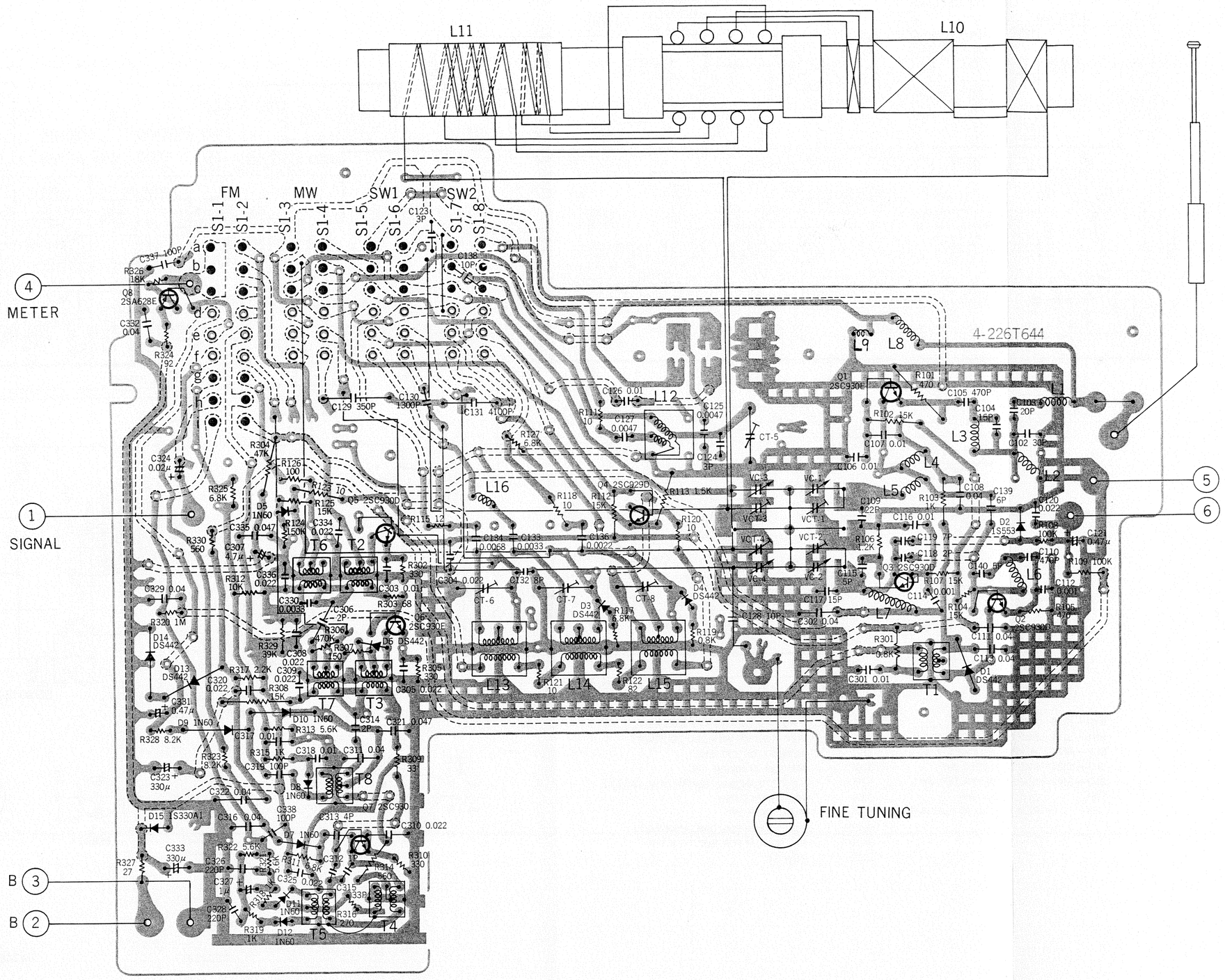
NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not av
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

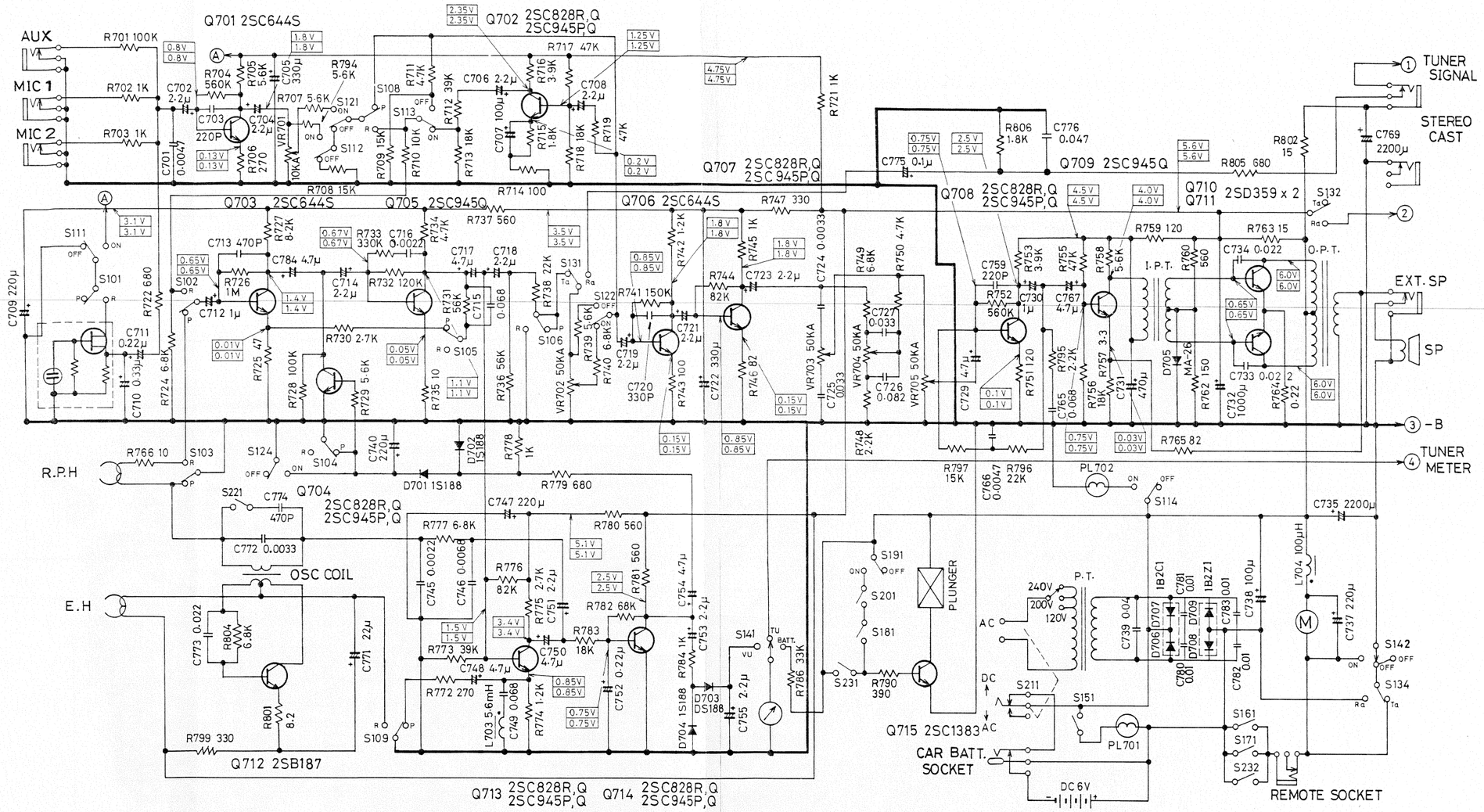
EXPLODED VIEW



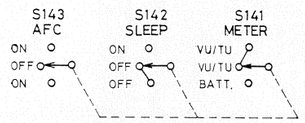
SCHEMATIC DIAGRAM (TUNER)

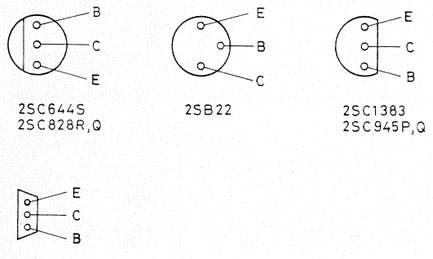



L11
L10
FM
MW
SW1
SW2
S1-1
S1-2
S1-3
S1-4
S1-5
S1-6
S1-7
S1-8
4
METER
1
SIGNAL
B 3
B 2
5
6
FINE TUNING
4-226T644
L16
L12
L13
L14
L15
L9
L8
L3
L4
L5
L2
L6
L7
L1
T1
T2
T3
T4
T5
T6
T7
T8
CT-5
CT-6
CT-7
CT-8
VC-3
VC-1
VCT-3
VCT-1
VCT-4
VCT-2
VC-4
VC-2
Q1 2SC930E
Q2 2SC930D
Q3 2SC930D
Q4 2SC929D
Q5 2SC930D
Q6 2SC930E
Q7 2SC930
Q8 2SA628E
D1 DS442
D2 1S553
D3 DS442
D4 DS442
D5 DS442
D6 DS442
D7 1N60
D8 1N60
D9 1N60
D10 1N60
D11 1N60
D12 1N60
D13 DS442
D14 DS442
D15 1S330A1
C337 100P
R326 18K
C332 0.04
R324 92
C324 0.02μ
R325 6.8K
R304 47K
LR126 100
R123 10
R125 15K
D5 1N60
R124 150K
C334 0.022
C335 0.047
R330 560
C307 4.7μ
C336 0.022
R312 10K
C329 0.04
R320 1M
R329 39K
C308 0.022
C309 0.022
R317 2.2K
C320 0.022
R308 15K
C331 0.47μ
R328 8.2K
R323 8.2K
C323 330μ
C322 0.04
D15 1S330A1
C333 330μ
R327 27
C326 220P
C327 1μ
C328 220P
R319 1K
C330 0.0033
C306 2P
R306 470K
R307 150
C303 0.01
R303 68
R302 330
C304 0.02P
C305 0.022
R305 330
R309 33
C310 0.022
R310 330
R314 560
C315 33P
R316 270
C316 0.04
C338 100P
C313 4P
C312 1P
C311 0.04
C314 2P
C321 0.047
R313 5.6K
C317 0.01
C318 0.01
C319 100P
R315 1K
R322 5.6K
R311 6.8K
C325 0.022
C123 3P
C138 10P
C129 350P
C130 1300P
C131 4100P
R127 6.8K
C127 0.0047
C126 0.01
R111 10
C125 0.0047
C124 3P
R118 10
R115 12
C134 0.0068
C133 0.0033
C136 0.0022
R120 10
R112 15K
R113 1.5K
C132 8P
R117 6.8K
R119 0.8K
R121 10
R122 82
C128 10P
C302 0.04
C301 0.01
R301 0.8K
R101 470
C105 470P
C104 15P
R102 15K
C107 0.01
C106 0.01
C103 0.0000
C102 30P
C108 0.04
C139 6P
R103 1K
C109 22P
C116 0.01
R106 1.2K
C119 7P
C118 2P
C115 5P
C117 15P
R107 15K
C114 0.001
R104 15K
C140 5P
C120 0.022
R108 100K
C121 0.47μ
C110 470P
R109 100K
C112 0.001
R105 470
C111 0.04
C113 0.04

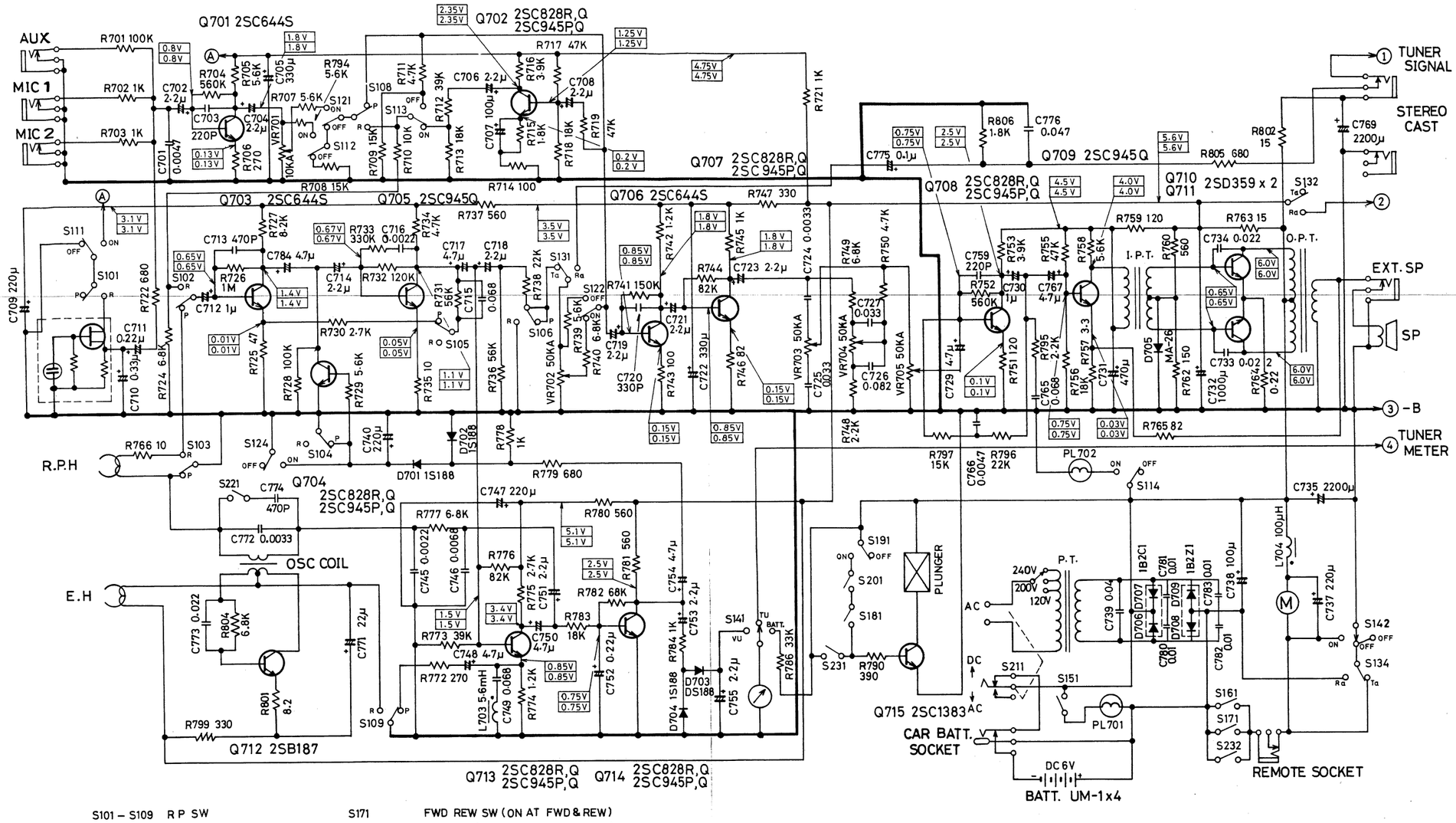


S101 – S109	R P SW	S171	FWD REW SW (ON AT FWD & REW)
S111 – S114	BUILT IN MIC ON/OFF SW	S181	REW SW (FOR MEMORY COUNTER)
S121 – S124	MIXING ON/OFF SW	S191	MEMORY ON OFF SW
S131 – S135	RADIO ON/OFF SW	S201	MEMORY COUNTER SW
S141 – S143	SLEEP SW & METER SW	S211	AC DC CHANGING SW (WITH AC IN LET)
S151	DIAL LIGHT SW	S221	BEAT CANCEL SW
S161	PLAY SW (ON AT PLAY & REC)	S231	AUTO STOP SW
		PL701	PILOT LAMP FOR DIAL LIGHTING
		PL702	PILOT LAMP FOR BUILT IN MIC
		S232	REW SW

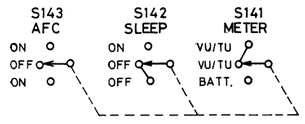


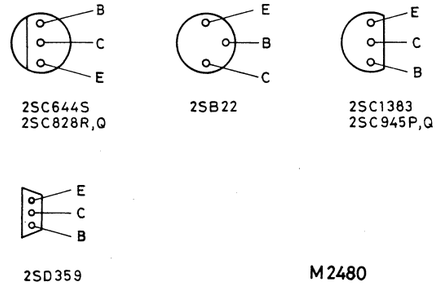


M2480



S101 – S109	R P SW	S171	FWD REW SW (ON AT FWD & REW)
S111 – S114	BUILT IN MIC ON/OFF SW	S181	REW SW (FOR MEMORY COUNTER)
S121 – S124	MIXING ON/OFF SW	S191	MEMORY ON OFF SW
S131 – S135	RADIO ON/OFF SW	S201	MEMORY COUNTER SW
S141 – S143	SLEEP SW & METER SW	S211	AC DC CHANGING SW (WITH AC IN LET)
S151	DIAL LIGHT SW	S221	BEAT CANCEL SW
S161	PLAY SW (ON AT PLAY & REC)	S231	AUTO STOP SW
		PL701	PILOT LAMP FOR DIAL LIGHTING
		PL702	PILOT LAMP FOR BUILT IN MIC
		S232	REW SW





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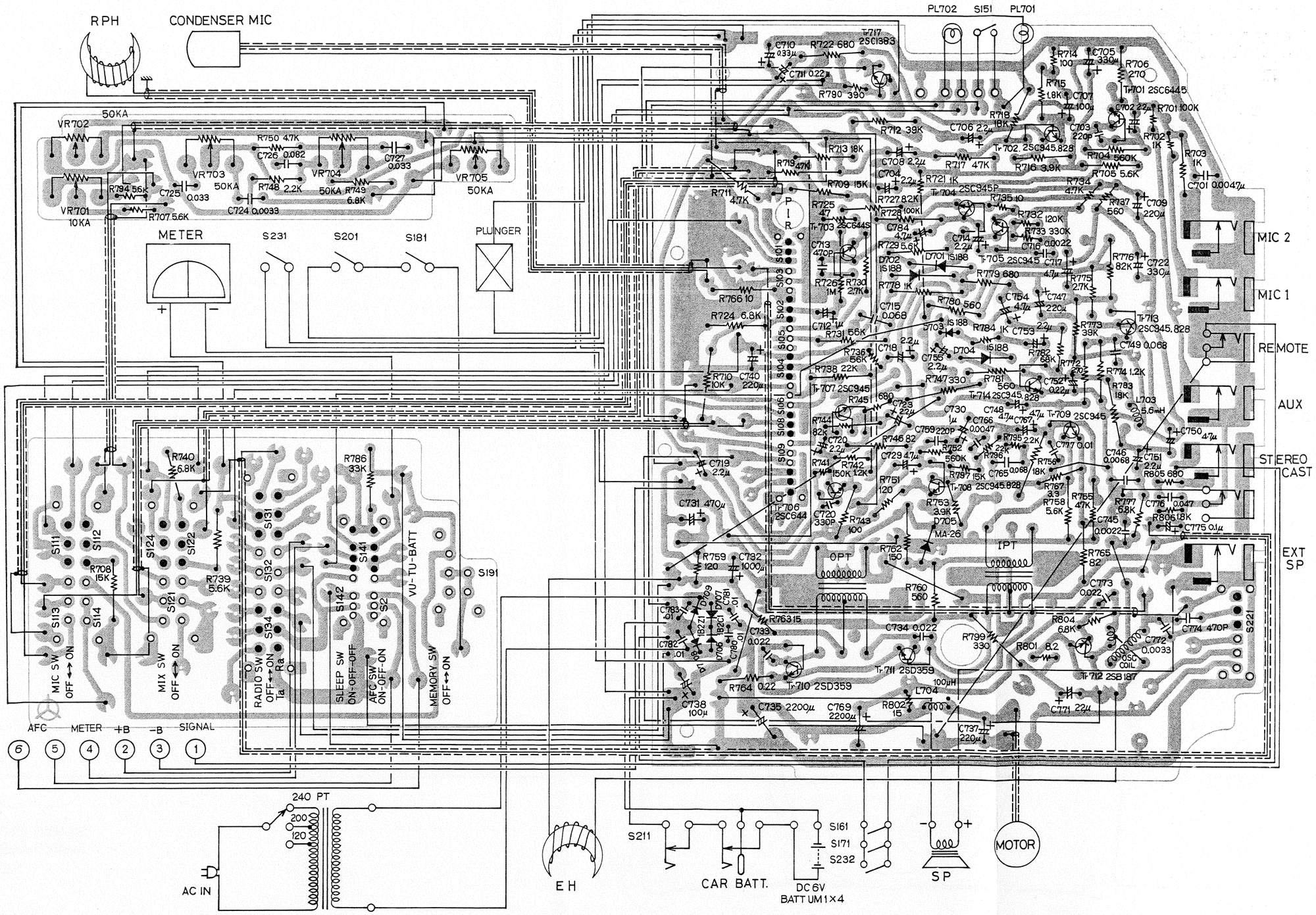
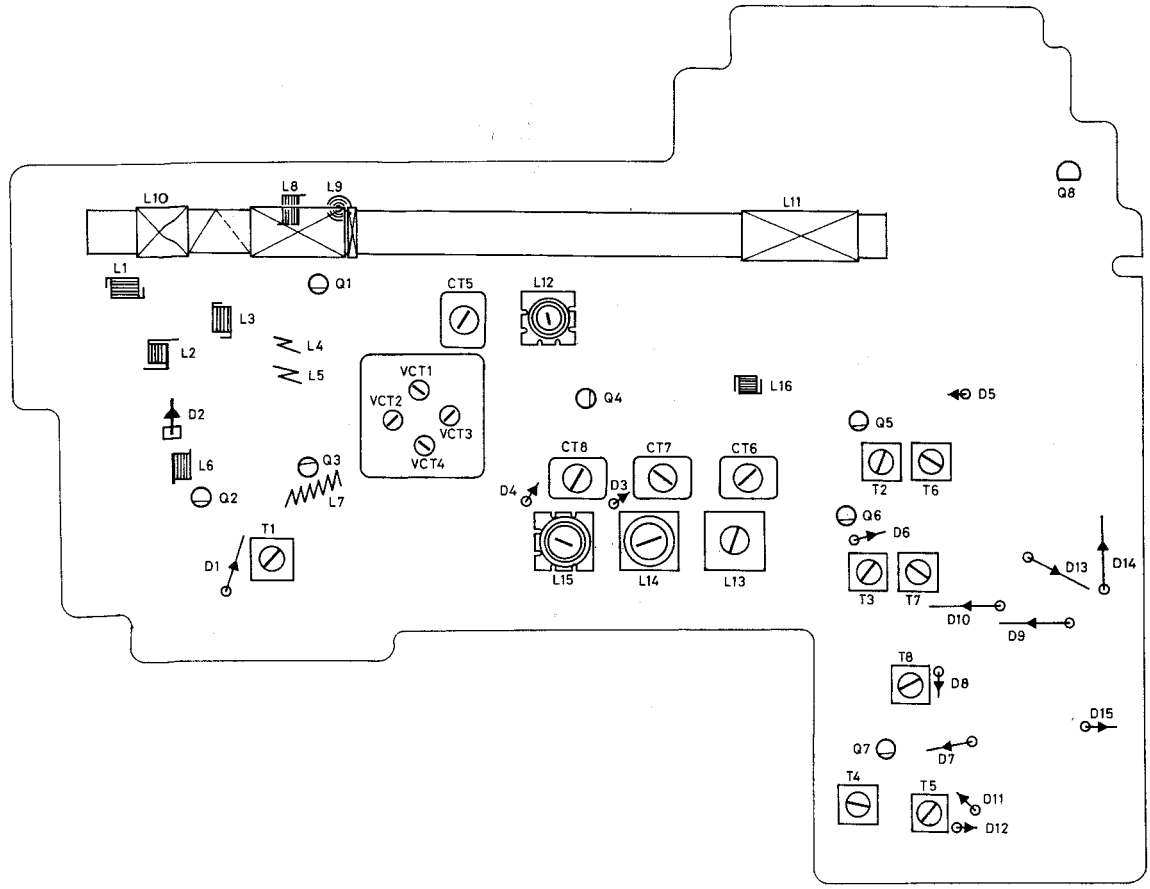

RPH
CONDENSER MIC
PL702
S151
PL701
METER
S231
S201
S181
PLUNGER
VR702 50KA
VR701 10KA
VR703 50KA
VR704 50KA
VR705 50KA
MIC 2
MIC 1
REMOTE
AUX
STEREO CAST
EXT SP
MIC SW OFF↔ON
MIX SW OFF↔ON
RADIO SW OFF↔ON
SLEEP SW ON-OFF-OFF
AFC SW ON-OFF-ON
MEMORY SW OFF↔ON
VU-TU-BATT
S191
AFC METER +B -B SIGNAL
240 PT
200
120
AC IN
EH
S211
CAR BATT.
DC 6V
BATT UM1×4
S161
S171
S232
SP
MOTOR
IPT
OPT
Tr-702 2SC945.828
Tr-703 2SC644S
Tr-704 2SC945P
Tr-705 2SC945
Tr-706 2SC644
Tr-707 2SC945
Tr-708 2SC945.828
Tr-709 2SC945
Tr-710 2SD359
Tr-711 2SD359
Tr-712 2SB187
Tr-713 2SC945.828
Tr-714 2SC945.828
Tr-717 2SC1383
Tr-701 2SC644S
D701 1S188
D702 1S188
D703 1S188
D704 1S188
D705 MA-26
D706 1B221
D707 1B221
D709 1B221
L703 5.6mH
L704 100μH

PARTS LOCATION



DIAL CORD STRINGING